

Probability

The **probability** of an event is the likelihood that the event will happen. The probability is measured on a scale from 0% to 100%, or from 0 to 1.

Impossible	Less likely	More likely	Certain
0%	25%	75%	100%
0	0.25	0.75	1

The **event** you are interested in studying is a **favorable outcome**. If you toss a coin and you want heads to result, heads is the favorable outcome.

Vocabulary

- Trial is an opportunity for an event to occur.
- Event is an individual outcome (a favorable outcome).
- Outcome is a result of an action (flipping a coin).
- Sample Space is the set of all possible outcomes (coin: Head or Tail)
- Experiment is one or more trials (flipping a coin 10 times).

Experimental Probability {Based on the # of Trials}

For a sufficient number of trials, the experimental probability of an event, $P(E)$, is given by the following formula:

$$P(E) = \frac{(\text{number of favorable outcomes})}{(\text{total number of trials})}$$

Example

Outcome of Rolling a Number Cube

1	1	6	1	6
5	4	3	4	2
3	4	1	5	3
1	2	3	5	1

Count the number of trials: 20 rolls

Create a frequency chart, then find the Experimental Probability, $P(E)$.

Event	1	2	3	4	5	6
Frequency	6	2	5	3	3	2
$P(E)$	$\frac{6}{20}$	$\frac{2}{20}$	$\frac{5}{20}$	$\frac{3}{20}$	$\frac{6}{20}$	$\frac{2}{20}$